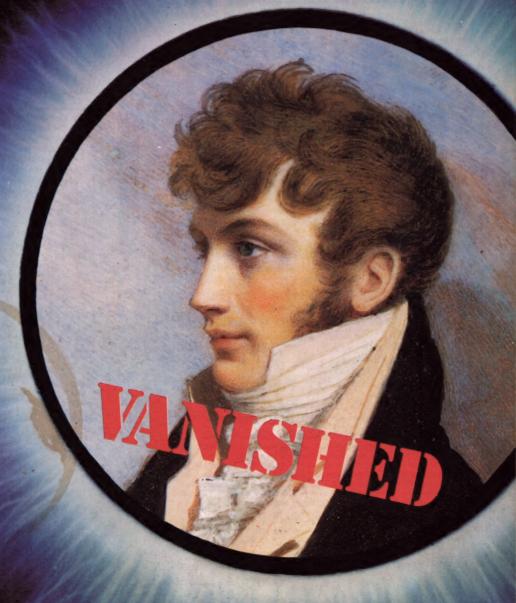
THE OWNER OF MIND SPACE & TIME

The Turin shroud
Where do the aliens live?
Trouble with poltergeists
Mysteriously vanishing people
Amphibians from space
A jump in time





Unexplained Mysteries of MIND SPACE & TIME

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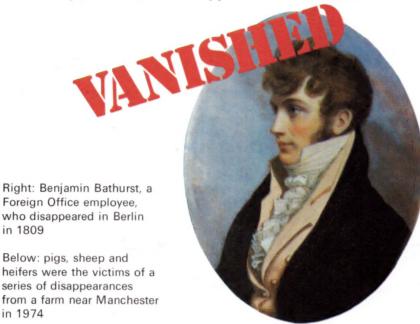
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Into thin air

People, animals and ordinary household objects that vanish into thin air or appear suddenly in unlikely places – these have always been part of folklore. But, as LYNN PICKNETT points out, the disappearances continue . . .





'NOW YOU SEE HER, now you don't.' So runs the stage illusionist's traditional patter as he makes his assistant disappear. It's a skilful and enjoyable trick, this disappearing act – but even in the everyday world, far from the stage door, there have been many disappearances and strange reappearances. Only for a handful of them are there rational explanations; most of them are so extraordinary that they almost defy belief.

On 29 November 1809 Benjamin Bathurst, an employee of the British Foreign Office, was about to board a coach outside an inn near Berlin. He went to look at the horses and vanished forever.

In June 1900, Sherman Church ran into a cotton mill at Augusta Mills near Lake Michigan, USA. He never came out and could not be found again.

In 1974 pigs, sheep and heifers vanished from two farms near Manchester, England.

Weird and apparently random phenomena such as these were the province of Charles Hoy Fort, an American who published his Book of the damned in 1919. This his most famous book - is a collection of wellattested stories, with a few sly hints that the natural world is one huge practical joke expressed through rains of frogs, people who disappear into nothing and people who come from nowhere. Charles Fort coined the word teleportation to describe the forcible removal of a person or object from one place – or even plane of existence - to another by forces unknown and unseen. According to taste, these forces have been ascribed to God, the Devil, spirit guides, fairies and UFOs.

Sister Mary's missionary flights

Sometimes the teleportee seems to be actually in two places at once - this phenomenon is called bilocation. A famous case of bilocation occurred in 1620 when a young nun, Sister Mary of Agreda in Spain, embarrassed her superiors with her persistent tales of her missionary 'flights' to the Jumano Indians in Mexico; she claimed she regularly made the 2000-mile (3200-kilometre) journey. No one was prepared to take her seriously, especially as she was not missed at the convent at Agreda and she made the farfetched claim that, during her 'flight', she noticed that the earth was round. . . . Yet the official Papal missionary assigned to the Jumano, Father Alonzo de Benevides, complained to the Pope in 1622 that the Indians had already been taught about the Catholic faith by a mysterious 'lady in blue' who had handed out rosaries, crucifixes and even a chalice - which proved to be from the convent in Agreda.

On being closely questioned by Father Benevides, Sister Mary revealed a detailed knowledge of the Indians' way of life and language and described individual members of the tribe accurately.

Like most teleportation stories, that of Sister Mary and her missionary activities

Disappearances

seems to defy classification and analysis. The fact that she 'saw' that the earth was round indicates some kind of astral travel, yet the chalice was solid enough.

The sudden appearance of solid objects, often in sealed rooms, is called apportation. Apports can be literally anything, from stones or musical instruments to a dish of hot food or fresh flowers out of season.

Things that go bump . . .

Apportation seems to be a favourite diversion of poltergeists, or so-called mischievous spirits; disturbed houses often provide the setting for spectacular apports appearing from thin air. Hans Bender, Director of the Institut für Grenzgebiete der Psychologie und Psychohygenie (Institute for Border Areas of Psi) in Freiburg, West Germany, has this to say of experiences of 'things that go bump in the night':

Stones, for instance, come into a closed room from outside a house during poltergeist attacks. Witnesses describe the stones falling from about 5 or 6 inches [12 or 15 centimetres] from the ceiling. They don't bounce, and when you touch them they are usually warm.

In one case . . . in Bavaria in 1969, stones came into a closed kitchen and objects flew out of the locked house. Some little dolls came out of a closed cupboard, seemingly through the very fabric of the door, and the people saw small bottles - perfume and medicine bottles - coming from the roof of the house. Interestingly, when the bottles were seen coming from the house, they were not falling in a straight line, but in a zigzag fashion, as if they were being transported, not as if they were falling free.

This notion of apports being carried by an invisible force accords perfectly with the spiritualists' belief that solid objects can be dematerialised and materialised through the agency of spirits. One 'spirit guide' named White Hawk described how he does it: 'I can only explain it by saying that I speed up the atomic vibrations until the stones [or other apport] are disintegrated. Then they are brought here and I slow down the vibrations until they become solid again.'

Spiritualists often explain the inability of most mortals to see the 'other side' - which is said to interpenetrate our world in space and time – by pointing out that the material world is 'dense matter', which vibrates slowly; the spiritual plane is 'refined matter', vibrating too fast for our physical perceptions. A sudden change in atomic vibration removes objects - or people - from one plane to another or one place to another, rather like the 'beaming up' and 'beaming down' of the personnel of Star Trek's starship Enterprise.

Vanishing people have always been part of the world's folklore - fairies, giants, spirits and, recently, usos have allegedly abducted

Below: Sister Mary of Agreda, who made her alleged missionary 'flights' to convert the Jumano Indians of Mexico in 1620. When the first official papal missionary visited the Jumano in 1622, he found that they had already been taught about Christianity by a mysterious 'lady in blue'. Yet Sister Mary's fellow nuns in Agreda, Spain, testified that she had not left the convent during the time that she claimed to have been in Mexico

Bottom: Dr Hans Bender. Director of the Institute for Border Areas of Psi in Freiburg in Breisgau, West Germany. Dr Bender has made a special study of objects and people that mysteriously appear and disappear





hundreds, perhaps thousands, of people. Fairies were infamous for their trick of abducting healthy babies and leaving weak 'changelings' behind instead, and various demons of legend have been blamed for removing folk from 'before the very eyes' of their friends.

But some unfortunate people disappear without any apparent supernormal agency. These random and pointless disappearances fascinated Fort, who collected a formidable dossier of them. The victims are often typical 'men in the street', uninterested in the paranormal, on whom some practical joke seems to have been played.

The 'joke' was distinctly unfunny for a man in 1655 who was going about his business in Goa, India, when he suddenly found himself back in his birthplace, Portugal. This abrupt return home was witnessed by enough people to ensure it came to the ears of the Inquisition, who naturally - for them assumed he was a practising sorcerer. He was tried and burnt at the stake.

In Connecticut, in January 1888, passersby were astonished by the sudden materialisation of six people in the street. All six were suffering from concussion.

The magician vanishes

Perhaps the most ironical dematerialisation was that of the stage magician, William Neff, as related by his friend L. J. Knebel, the American broadcaster. This extraordinary happening took place at the Paramount Theatre, in New York. There were few people in the audience and Neff went into his magician's patter routinely. His friend Knebel heard none of it: he was transfixed by the gradual dematerialisation of the artist. Neff became so translucent that the stage curtains could be seen through him. Curiously, the magician seemed to be unaware of his nebulous state and continued with his patter. Gradually he became solid again, beginning with a vague outline. Confronted by Knebel with this amazing occurrence, Neff confessed it was nothing whatever to do with his act! However, he was no stranger to the phenomenon - he had once partially dematerialised during his act at Chicago, and once, 'casually', in front of his very shaken wife. One supposes that if he ever learned how to reproduce this freak happening at will, he would have become a very rich man.

Someone whose fate and fortune seem inextricably linked is the Israeli sensitive, Uri Geller. Although - as far as we know not a teleportee, his very presence in a house provokes a flurry of apports.

Professor John Hasted, head of the department of physics at Birkbeck College, University of London, set up a test to see if the young Israeli could in any way alter the structure of a vanadium carbide crystal chosen for its particular hardness and its rarity. It was laid on a piece of metal and enclosed in a cellulose capsule. First the professor interposed his hand between Geller and the crystal. Then as witnesses watched, Geller moved his hand, and the crystal jumped twice, 'like a jumping bean'. Apparently this was all Geller had intended to do, because Professor Hasted says 'Geller stopped concentrating and we looked at the capsule. Only half the crystal was there.' It would have been impossible for him to have broken the capsule by ordinary means.

After Geller had paid a short visit to Professor Hasted's home, solid objects began

to behave unpredictably:

A small ivory ornament appeared out of thin air, not flying, but dropping to the ground from about a foot [30 centimetres] above the floor. There was also the key of a French Empire clock that teleported from one room to the next. I found it on the floor, by the kitchen door, and put it back in its proper place. . . . I walked back into the kitchen and found it lying in the same place on the floor.

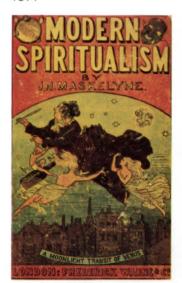
Uri Geller seems to have a psychokinetic ability (power of mind over matter) that he can only partially control or predict. Ironically, it is this very lack of control that, many people consider, argues for his genuineness—anything too glib implies rehearsal or sleight of hand.

This suspicion attached itself to the feats of many famous Victorian mediums. So many of them were proved to fake their seances that any curious phenomena attached to their movement became suspect. Even the founder of Theosophy, the controversial Madame Blavatsky, was frequently suspected of sleight of hand – for example, a whole teaset conveniently fell out of the sky during a picnic and, more tellingly, her 'teleported' messages allegedly from her Master in Tibet contained whole passages from a recently published American sermon – a fact that, while it does not directly challenge the reality



Above: Uri Geller, the Israeli sensitive, whose presence causes objects to apport

Below: 'a moonlight transit of Venus' – a contemporary impression of the teleportation across London of the large Mrs Guppy in 1871



of the teleported letter, reveals the Tibetan Master as a plagiarist and on the whole not the sort of guru whose word should be taken as gospel.

Another medium whose phenomena were both spectacular and open to question was Mrs Guppy who, while still Miss Nichol, produced apports of six variegated anemones, 15 chrysanthemums and assorted other flowers at a London seance in 1867.

One of her more startling feats, however, seems to be genuine. On the evening of June 3rd 1871 Mrs Guppy, attired in her nightgown (some reports say her underwear), was sitting quietly in the breakfast room of her Highbury home, busy with the household accounts. A friend was with her, when suddenly she disappeared and appeared in a room in Lamb's Conduit Street (a few miles away) where a seance was in progress, still clutching her accounts book and in a trance. That she was as solid in Lamb's Conduit Street as in Highbury was borne out by the fact that her materialisation caused some buffeting round the seance table. There was a heavy thud on the table and one of the sitters cried out 'Good God - there is something on my head!' One sympathises; Mrs Guppy was described as 'the biggest woman in London' she weighed over 230 lbs (100 kilograms) and, as she was something of a figure of fun, the whole story, instead of being the psychic proof of the phenomenon of teleportation so many mediums were looking for, became the biggest joke for years.

Fort, with his theory of the cosmic joke, might have pointed out that Mrs Guppy's name, size and joke reputation were precisely why it was she and not, say, Queen Victoria, who was 'selected' for this astonishing psychical demonstration . . . and why it was a stage illusionist who dematerialised 'before

your very eyes'.

God, demon, spirit, UFO – do any of these cause the strange disappearances? See page 307

The famous case of the 'Mary Celeste'

On 5 December 1872 the captain of the brigantine *Dei Gratia* sighted a ship sailing so clumsily that he went to investigate. The mystery deepened as he explored the abandoned *Mary Celeste*. Although showing signs of some storm damage, she was still sea-worthy. One lifeboat had apparently been launched (rather than having been washed overboard), but there was still plenty of fresh water aboard, provisions for six months were intact and the crew's clothes – including their oilskins – were hanging



on their pegs. On one bunk a child's toys lay as if left in mid-game. Everywhere there were signs of abrupt abandonment - however, the ship's navigation instruments and some papers were missing (although the log remained). The only signs of something bizarre were two long grooves apparently etched into the wood above the waterline, blood-like stains on the deck and on the captain's sword in his deserted cabin, and a mysterious cut in the ship's rail. What really happened? Did the crew fall victim to illness, insanity, homicide, suicide or the delusion that they were sinking? Were they abducted by giant sea-creatures or spacemen, as some suggest? The theories are many, but it seems very likely that we shall never know for certain.





THE CHURCH of St Olave stands at the park gate of Gatcombe House, where it was built as a manorial chapel in the 13th century by the family of Estur. William Fitz-Stur was one of three Norman knights to whom William I granted the lands of the Isle of Wight in 1086, and for three centuries his descendants were lords of the manor, calling themselves sometimes d'Estur, sometimes de l'Isle. In 1306 John Lisle was made a Knight of the Bath - 'by Bathing and other Ceremonies', as an antique description puts it – by Edward I, in the name of John de Insula Vecta. His son John died in 1369 without a successor and the inheritance went by way of the female line. Perhaps it would have been otherwise if Edward Estur had not returned from the crusade of 1365 wounded in the head and suffering from loss of memory.

For many years the carved oaken figure of a recumbent man in the chancel of St Olave's church was reputed to be a representation of its founder, but during the last century it was recognised as a memorial to Edward Estur. The figure lies in a suit of mail, a shield upon its left arm, its legs crossed - the sign of a knight who had fought in the crusades – and resting upon a small couched dog. Eighteenth century engravings show a short sword held in the right hand, a weapon known as a misericord, for it was used to give a fallen adversary quick mercy to save his sufferings. But since the morning of 13 June 1831, legend says, that misericord has been missing.

The Reverend James Evans, former rector of Gatcombe, has recently written the story of what happened on that fateful morning. Some 20 years before, at Stoney Meadow farm in the hamlet of Bowcombe, about two miles' ride over the down from Gatcombe, a little girl was born to farmer Lightfoot and his wife. Christened Lucy, she grew up to become one of the beauties of the neighbourhood, dark-haired, passionate, a fine horsewoman full of fiery spirit. Although

Above: the effigy of Edward Estur in Gatcombe church. The wooden dagger in his hands was fashioned as a replacement by a local carpenter

Below: the Reverend James Evans, who first put the story of Lucy Lightfoot into print



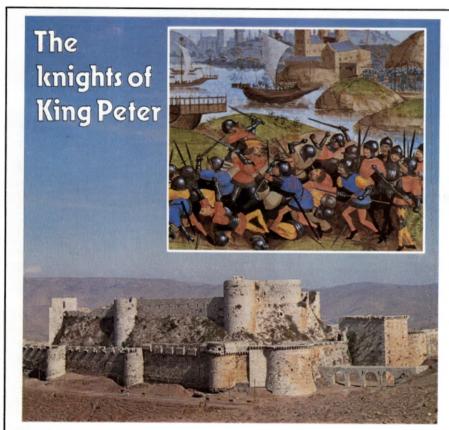
Bowcombe is not in the parish of Gatcombe, this was the nearest church, and in her teens Lucy became a regular worshipper at St Olave's. It soon became clear that it was the effigy of Edward Estur that particularly attracted her, for she was often to be seen to enter the church and stand for hours staring at the calm manly face of the figure. And when she was asked 'Why do you stand so?', it is said that she replied: 'I love to be with him and accompany him on his adventures in my thoughts and dreams'.

On the morning of 13 June 1831, at about 10.30, Lucy was seen to leave her horse tethered at the church gate and enter the ancient building. Soon afterwards there occurred a total eclipse of the sun. For more than half an hour the land was in darkness and, at the same time, the most violent storm in living memory burst upon the island. Fields were flooded, crops flattened and farmhouses were struck by lightning.

Two or three hours later a farmer from Chale, George Brewster, noticed Lucy's horse, very frightened, still tied at the church gate. He went into the church and was surprised, and rather disturbed, to find that there was nobody there at all. Lucy was not in the churchyard, nor in any of the neighbouring cottages, and from that time she was never seen again. Within a few days her parents were offering a substantial reward for news of her whereabouts, but it went unclaimed. Two years later they sold the farm and left the district.

Within the church, nothing at first sight seemed changed. Then the rector noticed that the steel misericord had been wrenched from the hand of Edward Estur's effigy and lay in shattered pieces on the floor; and the jewel that had been set into the hilt, a fine chrysoberyl in a mount of lodestone, had vanished.

This should have been the end of the story of Lucy Lightfoot. But, according to James Evans, 35 years later a Methodist minister in



Lines translated from La prise d'Alexandrie by Guillaume de Machaut: Then (to be brief) the foreigners Which the king found most dangerous Hied they them off, by every way And, in short, they went away. They numbered six, and now shall I Give you their names without a lie: Each one of them at once set out Here are their names, without a doubt. (In all known copies of this manuscript, these promised names are omitted) But ere their journey they had started And from Limassol had departed The king them all did recompense And give them gifts at his expense: Gold and silver, silken threads, Ships and jewels and fiery steeds

(A battle in Syria on 1 March 1367)
Mais pour ce ne se sont retrais
Qu'il n'aient maintenu l'Estour
Tant qu'il ont victoire & honnour.
But as they then did not retreat
Nor fail to succour lord Estur
So had they victory and honour.

Left: a Crusader headquarters in Syria; and (inset) a battle in the 14th century

the Scilly Isles, the Reverend Samuel Trelawney, was researching into the history of the last crusades when he came across a manuscript by Phillipe de Mezières. De Mezières, one of the last of the great crusaders, had been Chancellor to Peter I of Cyprus and had been responsible with him for organising the crusade of 1365 that resulted in the sack of Alexandria.

In November 1363 the king of Cyprus was in London, where he secured the services of a number of volunteer English knights. According to Mr Evans, Trelawney's manuscript named these knights in full. One of them was Edward Estur, who was accompanied by a beautiful girl from the Isle of Wight, whose name was – Lucy Lightfoot!

Edward and Lucy presumably travelled to Cyprus and there, in the early autumn of 1365, Edward left her. He sailed with the other crusaders for Alexandria, which fell to them on 10 October, and then joined an expedition to ravage the coast of Syria. In one attack he was seriously wounded in the head by a Saracen sword; he lay dangerously ill for four months before being taken aboard an English ship in Alexandria and brought straight back to England.

Peter of Cyprus created a special honour for the foreign soldiers who had fought in his crusade: it was the Order of the Sword, whose emblem was a silver dagger with a cross-hilt. Round the weapon was a ribbon inscribed *C'est pour loiauté maintenir* (This is to keep your loyalty).

Far from Cyprus, and with his mind

deranged, Edward forgot all about his Lucy; and she, after waiting three years for her lover to return from the crusade, left Cyprus for Corsica, where she married a fisherman. Edward Estur died in Gatcombe, where he was buried. In due course a tomb was raised over his grave, with his carved wooden effigy upon it and in his hand the short bejewelled dagger that showed his honoured membership of the Order of the Sword.

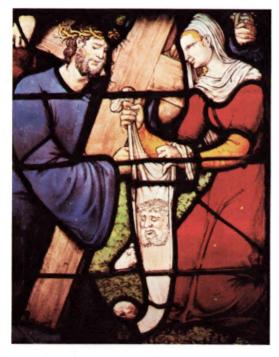
That, at least, is the story as the Reverend James Evans tells it – although it must be said that extensive research has not so far uncovered the manuscript said to have been found by the Reverend Samuel Trelawney. All the facts concerning the last crusade are true and Edward Estur certainly existed; and his effigy supports the story that he served in the crusade and was awarded the Order of the Sword. Whether or not the 14th-century Lucy Lightfoot existed, there is no doubt that something very strange happened in Gatcombe church on that June morning in 1831; and it seems in some way to have been connected with the remarkable geological nature of the Isle of Wight, and with Gatcombe's position at its very centre.

An intense electrical storm, a piece of lodestone apparently reduced to nothing, a legend that seems to imply some kind of sidestep in time – these are items that can perhaps give us a clue to some of the mysteries of the Isle of Wight.

What were the initiation rites of the island's secret societies? See page 321

Is this the face of Christ?

Was the image on the famous Turin shroud made by the body of Christ himself – or is it no more than a painting by a medieval forger? FRANK SMYTH charts the remarkable history of this most controversial of relics



Left: St Veronica's cloth, in a detail from a 16th-century window in St John's Church, Gouda, Holland. Legend has it that, as Christ carried the cross to Golgotha, St Veronica was so moved by pity that she gave him her handkerchief to wipe his face. Later she found that the image of his face had been miraculously impressed upon it. A relic preserved in St Peter's. Rome, was long thought to be St Veronica's cloth, but this claim is no longer taken seriously

Right: the Turin shroud. The impressions of the front and back of a man's body can be clearly seen, 'hinged' at the head

DURING AND IMMEDIATELY after the Crusades, mendicant friars wandered Europe selling objects said to have come from the Holy Land - allegedly relics of the early church. Among those recorded were the knucklebones of St Peter, the arrows that killed St Sebastian, pieces of the Virgin's gown and lumps of dried bread from the Last Supper. The very ubiquity of some of these items made the Church a laughing stock and gave ammunition to such reformers as Martin Luther and John Calvin; there are still said, for instance, to be enough splinters of the true cross scattered among the churches of Italy, Spain, and southern France to make a sizeable grove of trees.

Not unnaturally the Roman Catholic Church became wary of, if not openly hostile towards, such artifacts, and at the end of the 19th century the Vatican issued a proclamation stating that no relic, 'be it the most sacred in Christendom', could be regarded as authentic. This bald edict was made to counter the remarkable assertion of a French scientist and agnostic that a strip of cloth known as the Holy Shroud of Turin was the genuine winding sheet of Christ. Such was



Above: Pope Clement VII, who reigned from 1523 to 1534. The Bishop of Troyes complained to him that the Turin shroud was being exhibited for financial gain by its owner, Sir Geoffrey de Charnay. The Pope, however, ruled that the shroud could stay on show, but not as an authentic relic



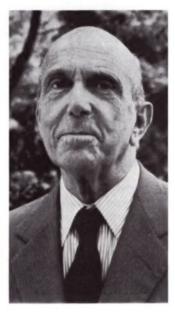
the standing of this Dr Yves Delage, however, that science took over where superstition left off; for the past 80 years continued attempts have been made to unravel the mystery of the shroud, culminating in the Shroud of Turin Research Project of October 1978. For five days the fabric was subjected to exhaustive tests by nearly 40 top scientists using space-age instruments, and although the full analysis of their work has yet to be published, it is already clear that if the project has answered some questions it has posed startling new ones.

The Holy Shroud of Turin is a rectangular strip of cloth 13½ feet (4 metres) long by three and a half feet (1 metre) wide. On its surface can be seen the faint, yellowish-brown imprint of a human figure, naked and bearded. Darker stains, said to be blood, are superimposed on the image, notably on the head, wrists, feet, and left hand side, and both back and front views of the figure appear, hinged, as it were, at the crown of the head, which appears to bear a kind of wreath.

The first probable mention of the shroud occurs in 1203, when the military chronicler Robert de Clari wrote that in the previous year he had seen a *sydoine* – shroud – that bore 'the figure of our Lord' during the sacking of Constantinople by Christian knights during the fourth Crusade. Unfortunately, he said, it had disappeared in the turmoil. Just over 150 years later comes the first certain record of the present 'Turin' shroud, and all the indications are that it was the same as that seen by de Clari. It was owned by a rather unscrupulous knight



Below: ex-King Umberto of Italy, Duke of Savoy and owner of the Turin shroud. Since 1578 the shroud has been in the possession of the family of the Dukes of Savoy, whose seat is at Turin



Left: a painting of Christ on the cross by the 19thcentury French artist Delacroix. Like other traditional artistic representations, it shows Christ nailed to the cross through the feet and the palms of the hands. Research has shown, however, that the flesh of the palms of the hands cannot support the weight of the body without tearing. It is highly likely that, as in the Turin shroud image, the nails were driven through the radius of the wrist. The authentic detail of the position of the nails in the shroud image supports the argument that it is not a medieval forgery

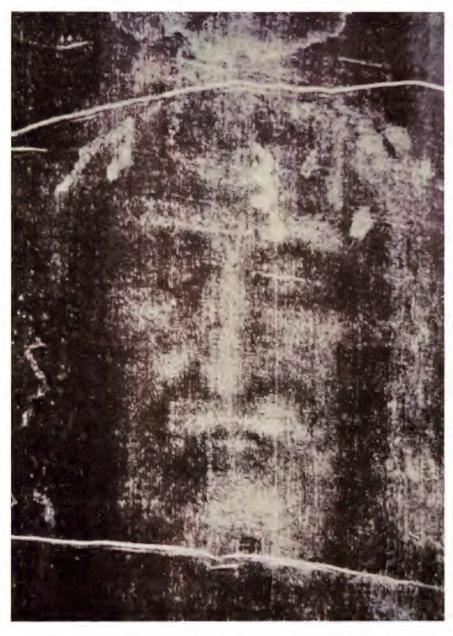
named Geoffrey de Charney, overlord of the French town of Lirey, and by 1389 the fame of the relic was such that he decided to put it on public display for money. This move caused a great deal of jealousy in neighbourhood circles, for popular relics were at a premium at that time and the financial income from a good one could be considerable. Either out of pure jealousy or perhaps because he thought he was acting from honourable motives, the Bishop of Troyes complained to Pope Clement VII at Avignon of de Charney's exposition. His story was the foundation of the most frequent accusation levelled at the shroud until the present day: that it was in fact a forgery, the work of an artist . . . 'cunningly painted, the truth being attested by the artist who painted it.'

Pope Clement seems to have thought the Bishop's allegation a trifle thin, and ruled that the shroud could remain on show as an object of devotion, though not necessarily as an 'authentic' relic.

Saved from the fire

For over 60 years the shroud continued to attract pilgrims, until in 1453 Geoffrey's grand-daughter Marguerite de Charney gave it - or more likely sold it, though the motive is not clear - to Louis, Duke of Savoy. The de Charneys had shown the relic in a simple setting, but Louis, either from piety or showmanship, encased it in a silver frame and built a special shrine - Sainte Chapelle at Chambéry, his capital. In 1532 a neardisastrous fire broke out in Sainte Chapelle; the heat melted the silver reliquary, and drops of molten metal burned through the cloth in several places, though water was quickly used to douse the scorching. The worst burns were neatly patched, and both the burns and the water stains were to be of assistance during the 1978 scientific investigation. In 1578 the shroud made its last journey across the Alps to Piedmont, where the then Duke of Savoy had set up his household at Turin. It was lodged in the cathedral, next to the Royal apartments and has remained there, apart from a spell in vaults during the last war, ever since. Today it is the property of ex-King Umberto of Italy, the present Duke of Savoy (who lives in exile in Portugal), and it is kept for him by 'his' Archbishop, Anastasio Ballestreno, in Turin Cathedral.

From the very beginning of its recorded history, observers had noted something subtly but indefinably 'wrong' about the image on the shroud. Pope Clement, for instance, is said to have felt that if it was a forgery, far from being 'cunningly painted' as the Bishop of Troyes alleged, it was rather badly done. Albrecht Dürer examined it at Ste Chapelle in the early part of the 16th century and was baffled by it. He made several attempts to draw it, but felt that, though the anatomical proportions were correct, the model for it must have been



'deformed' – in a manner he found hard to define.

It was not until 1898 that the shroud revealed its first strange secret. It was taken from its silver casket to be put on rare public display, and a Turin photographer, Secondo Pia, was commissioned to take the first photographs of it. As he developed his plates there appeared not the blurred, odd image on the shroud but the perfectly formed features of a man: the shroud itself was a photographic negative. The realisation so astounded Pia, he said, that he dropped the plate he was holding in shock.

The implications of the discovery were not lost on Dr Yves Delage, a prominent physicist and zoologist and leading member of the French Academy of Sciences. He determined to find out how the image had appeared – 500 years before the invention of photography. However, his motives were not disinterested, for Dr Delage was an agnostic and militantly anti-Catholic, and he had no

Above: a photographic negative of the face from the Turin shroud. There are clear marks around the forehead – made, perhaps, by the crown of thorns?

intention of allowing the Church to make supernatural claims for the shroud.

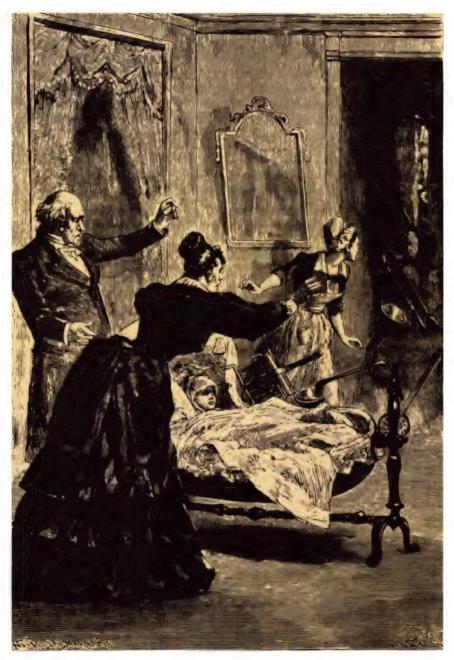
For three years he and a brilliant young biologist named Paul Joseph Vignon studied the image and experimented with methods of reproducing it. First, they employed artists to paint an image using medieval pigments, pursuing the theory that the painting might have faded in such a way that the darker areas had become highlights over the years, thus producing a 'negative' image. None of the experiments was successful.

Then they began again from the premise that the cloth had been somebody's shroud. The cloth was of Palestinian weave of a type known to have been made until the fifth century AD. Execution by crucifixion had been outlawed by the Romans in the fourth century, so the man of the shroud had been crucified in Palestine some time before then. They noted that, according to Biblical traditions, Christ had been hastily buried on Friday to avoid the Jewish sabbath. The body had been 'anointed' but not washed. The most common form of burial ointments in use in Palestine at that time had been myrrh and aloes. Vignon knew that sweat from a dead body produces a substance named urea, which in decay gives off ammonia vapour. He experimented with ammonia and cloth 'sensitised' with myrrh and aloes, and managed to produce brownish stains similar to those on the shroud.

As far as Delage was concerned, that was the answer to the riddle of the image's formation. But when he presented his findings to the Academy of Sciences in 1902, he went further. He was convinced, he said, that this was indeed Christ's shroud. On the one hand, he pointed out, there was the Biblical account of a man who had undergone a very uncharacteristic form of crucifixion; as well as being nailed to a cross he had also been scourged, crowned with thorns, and finally pierced through the left side with a lance. On the other hand, here was a strip of linen apparently originating in Palestine depicting a man who had undergone exactly the same form of torture and death. Delage added that his conclusion did not affect his own antireligious views in any way. He regarded the shroud as a piece of historical evidence, and pointed out that if such weighty evidence had involved a relic of some character from mythology such as Achilles it would be accepted much more easily. As it was, the emotional aura surrounding his conclusion served only to obscure scientific reality.

There is no doubt that Delage was right on this point. The predominantly Roman Catholic Academy were nervous of the implications, and rejected his findings – even taking the rare step of supressing them by refusing to print his carefully mustered evidence in their minutes.

Recent research has revealed some startling secrets of the Turin shroud. See page 318



Poltergeists, unlike ghosts, 'haunt' by causing commotions, making noises, throwing things around. ANDREW GREEN begins his investigation into these odd disturbances

MYSTERIOUS BANGS, loud crashes, objectionable smells, furniture that moves about on its own, sudden cold spells, inexplicable voices, objects that appear and disappear, the uncontrolled levitation of victims – these are all symptoms of what is often called poltergeist activity. (The word poltergeist is derived from two German words – a folklore term, *polter*, meaning 'noise' and the word for 'spirit', *geist*.) The development of psychical research and parapsychology during the last 100 years has introduced into the language a more cumbersome phrase to describe the same phenomena – recurrent spontaneous psychokinesis (RSPK).

Such disturbances have been recorded since at least the 12th century. At one time they were believed to be caused by an evil force, a creature of Satan, though the identity of the force remained a mystery. Writing in the 13th century, Gerald of Wales noted that a 'spirit' was heard to converse with a group of men in an alarmingly aggressive fashion; 300 years later, in 1599, one of the first authentic examinations of this type of incident was undertaken by Martin del Rio. He described 18 kinds of demon, including one that specialised in causing disturbances:

The 16th type are spectres which in certain times and places or homes are wont to occasion various commotions and annoyances. I shall pass over examples since the thing is exceedingly well known. . . . Some disturb slumbers with clattering of pots and hurling of stones and others pull away a mattress and turn one out of bed.

Although there are still some people today

Bumps, thumps, rattles and







Living ghosts

An unusual feature of some RSPK cases is the materialisation of 'phantoms' – invisible manifestations of living people or animals.

In one famous case a boy of four was lying asleep in a bedroom in a Sussex public house where his father was landlord. His mother was resting on a bed in the opposite corner of the room. The child was obviously having a disturbing dream, and suddenly his body twitched three times. Each time his mother felt 'something invisible' fall on to her bed. When the child woke up he asked a strange question: 'What has happened to the cat?' The family did not have a cat but the former landlord, who had also had a four-year-old son, had shared the room with a black cat that vanished when they left the public house. A coincidence? Perhaps - but a parapsychologist who heard of the case has suggested that a force generated by the dreaming child was powerful enough to simulate the

imaginary and invisible cat.

This explanation could account for the phantom footsteps heard on another occasion. In this case steps were heard in a room that was known to be quite empty, and it was later discovered that a child asleep in an adjoining bedroom had been dreaming about one of his relations, whom he imagined to be striding through the property.

But it seems that such phantoms can be summoned up by design as well as by accident. In the course of a fascinating experiment conducted in the 1950s a researcher was asked to try to dream about visiting a certain room in a house he knew in Brighton, which was a long way away. Two witnesses, who had not been told of the details of the experiment, were stationed in the room. In due course they watched the dreamer - in fact, a phantom who resembled the dreamer in every detail - open the door of the room, as instructed, walk around for a moment or two and then leave. Throughout the experiment the dreamer himself had not left his bed.

Left: Mama, Papa and the maid stand aghast as the nursery is bombarded by flying pots and pans. The child, however, sleeps on through this barrage of objects

Below: scenes during the poltergeist 'haunting' in a council house at Enfield. north London, between August 1977 and September 1978. Twelve-year-old Janet seemed to be the epicentre (focus) of the disturbances. often being dragged out of bed by an invisible force (below far left, below left and centre). Even when she took to sleeping on the floor she was still forcibly moved and was often found asleep on top of the large radio (below right). When Janet was seized by the force it was very difficult to hold her down, as researcher Maurice Grosse discovered (below, far right)

who maintain that RSPK can be attributed to the activity of 'elementals', it is more generally accepted that 'hauntings' of this kind have a 'natural', not a 'supernatural', origin. Yet we still do not understand them.

The most spectacular case of RSPK ever recorded lasted for an 11-month period, from August 1977 to September 1978. During this time a woman and her four children, who were living in a council house in Enfield, on the northern outskirts of London, experienced practically every type of poltergeist phenomenon that has been identified. No fewer than 1500 separate incidents were recorded between August and March, and this astonishing barrage of disturbances mystified all those who were involved in the investigations, including social workers, a speech therapist, photographers, psychologists, priests and two investigators. Guy Lyon Playfair and Maurice Grosse.

As is normal in such cases, the 'haunting'

started in a comparatively quiet fashion. A 'sort of shuffling sound' seemed to come from the floor of a bedroom, which was like the noise made by someone shambling across a room in slippers, according to the mother of the family. Then knocking started, and this continued for nearly 11 months.

A voice, deep, gruff and crude, was taperecorded on many occasions. After several attempts had been made to identify it, the voice itself claimed to belong to a 72-year-old man from Durants Park, a nearby road. A listener to a local radio phone-in programme heard a recording of the voice and identified it as that of her uncle, Bill Haylock, whom she described as 'a gypsy type'. But every attempt to prove the validity of the claims failed – a fairly common experience in cases of this kind.

There were many other inexplicable incidents. On one occasion a toy brick suddenly appeared, 'flew' across the room and

pranks







Poltergeists

hit a photographer on the head. Paper and pieces of cloth caught fire spontaneously, and a box of matches that was lying in a drawer burst into flames, which extinguished themselves without igniting the rest of the contents of the drawer. A message, patched together from lengths of sticky tape, was found on the lavatory door. Cutlery, a metal teapot lid and a brass pipe were all seen to bend and twist of their own accord. Three pieces of stone were found scattered about the house, which were later discovered to be fragments of a single stone that had been split.

The strength of the force at work in the house can be gauged from some of the more impressive incidents. Part of a gas fire was wrenched away from the fireplace, and its grille was thrown across the sitting-room. Large pieces of furniture, among them a chest of drawers, a heavy sofa and a double bed, were tossed around the house.

Janet, the 12-year-old daughter, seems to have been the focus (the epicentre) of all this activity. It was from her that the deep voice appeared to emanate. It was she who experienced levitation (witnesses on two occasions said that she seemed to be suspended in

mid-air). She and her sister Rose were thrown out of bed so often that in the end they decided to sleep on the floor – but that



did not put an end to the poltergeist's activities, for Janet was often found, fast asleep, on top of a radio in her bedroom.

Although the family was very frightened at first, as time wore on the children and their mother were mystified rather than alarmed. Their reaction was typical of the attitude adopted by many of those who experience RSPK in Britain, as poltergeists generally cause little actual damage or physical injury. As one investigator has pointed out: 'RSPK is really a series of nuisance incidents, rather like the actions of a frustrated adolescent or a child-like personality.' This is not entirely true of American cases, however; experts such as W. G. Roll have acknowledged that many victims of poltergeist activity in the United States do suffer physical injury, albeit minor.

The Enfield case was certainly remarkable for the extent and duration of the phenomena





that the family experienced. But many of its features have been observed by countless people in other places and in other ages.

Mysterious knocking and rappings, for example, are often the first indications of the presence of a poltergeist (though some people notice first that objects are moved from their usual places). An early classic British case of RSPK, which became known as the Drummer of Tidworth, was recorded in 1666 by the Reverend Joseph Glanvill, who lived in a house on the site of the present Zouch Manor in Wiltshire. Two girls occupied a bedroom from which a 'strange drumming sound' seemed to emerge. The noise was traced to a point 'behind the bolster'; sceptics argued that the girls were the cause. But eventually the girls were cleared of suspicion. Their hands were always outside the bedclothes, and as for the noise, the Reverend Glanvill reported that he

Above: 'The drummer of Tidworth' – a poltergeist outbreak recorded in 1666 by the Reverend Joseph Glanvill. 'A strange scratching sound', or sometimes a drumming noise, was often heard in the bedroom occupied by two young girls

Far left: Maurice Grosse with some souvenirs from his investigation of the Enfield case. Among them are household objects that were burnt or broken mysteriously

Above left: boxes of matches that were set alight and then extinguished by London poltergeists



could find 'no trick, contrivance or common cause' to explain it. In the absence of concrete evidence, a legend arose to account for the weird drumming sound.

In America in 1848 a celebrated case, known as the Fox case, appeared to confirm that raps were an early indication of poltergeist activity. It was this case that later prompted the founding of the Spiritualist movement, as hysterical and imaginative witnesses assumed that spirits were trying to communicate through the two girls who were apparently (but unconsciously) responsible for the sounds that were heard.

In 1960 a similar case was investigated in Alloa, in Scotland, where a girl of 11 heard a curious 'thunking' noise, rather like a ball bouncing (or a drumming?), that seemed to come from the head of her bed. An unusual aspect of what later developed into an extremely interesting example of RSPK was that the girl herself was so calm about the experience that investigators were able to record the incidents in a rational and detailed manner. Like the Reverend Glanvill 300 years earlier, the Reverend Lund, one of the investigators involved with the case, found that the violent vibrations were indeed coming from the head of the girl's bed, and he ruled out the possibility of fraud.

In a case in Battersea, in south London, in the 1950s, however, the poltergeist announced its arrival by placing an unidentified key on the bed of a 14-year-old girl, Shirley Hitching. This incident remained as puzzling as Shirley's ability to produce raps, several paces from her body, in answer to questions that she asked her 'polty'. Perhaps to prevent hysteria and mental stress, she and her parents, like many other victims, invented a personality for the poltergeist, whom they called Donald. They decided that he was the spirit of a 14-year-old illegitimate son of Charles II of France named Louis Capet. Donald was irrepressible. He decorated the walls and ceiling of Shirley's bedroom with graffiti and pictures of film stars, and he wrote letters (or so it was Top: Harry Hanks, a psychic, gives his views on the Battersea poltergeist to an interviewer after a seance

Above: Shirley Hitching, the 14-year-old who was the focus for the 'haunting'

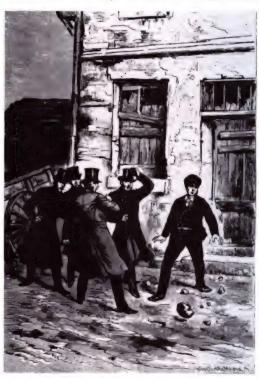
Right: Blocks of paving stones – too large for a man to pick up – were hurled with great violence at a coalman's house in Paris in 1846. The missiles continued to smash the house even when it was guarded by police and soldiers. After bombarding the house for several weeks the poltergeist abruptly ceased its activities

claimed) to a number of dignitaries, including Lord Brabazon.

Alien voices are a common feature of RSPK. Various theories have been advanced to explain the phenomenon, among which perhaps one of the most plausible is that of a 19th-century French doctor, Gilles de la Tourette. He identified certain symptoms of trauma and severe stress and classified them as forms of copropraxia (the delight in, and inappropriate use of, obscene language) and echolalia (the meaningless repetition of speech patterns). He observed that some of his patients made 'obscene gestures and explosive utterances', and many of the noises and barking sounds that he described were identical to those produced by 12-year-old Janet in Enfield who, like the Frenchman's patients, was under great stress (caused among other things by her parents' separation).

Spontaneous combustion too is often associated with poltergeist activity. In one case in Sussex a leading exorcist who was called in to deal with an alarming series of incidents was sitting chatting quietly to a five-year-old boy. Suddenly he noticed that a fire had started in one corner of the room. Within minutes all the wallpaper and the curtains were alight - but they were burning from the ceiling downwards. The flames stopped at an invisible line drawn all round the room. Objects on the windowsill remained untouched. The researcher realised that the fire was limited to the area beyond the child's reach, and the boy himself seemed only a little disturbed by the flames, which quickly extinguished themselves.

Stones play a part in many RSPK cases. A particularly rare instance occurred in Ceylon earlier this century. A man who had often



Are ghosts 'real' only in the eye of the beholder? Or are they perhaps part of an objective phenomenon that is nevertheless created - like poltergeists - by the human mind? In 1972 eight members of the Toronto, Canada, Society for Psychical Research decided to create a ghost. They invented a totally fictitious character called Philip, giving him a distinct personality and agreeing on the details of his non-existent 'life'. They made him the ghost of a 17th-century English aristocrat - a cavalier - whose torrid love affair with a gypsy called Margo ended when his wife denounced his mistress as a witch. She was burnt at the stake and Philip, enduring agonies of remorse, took to wandering the battlements and finally hurled himself to his death. The setting for this drama was Diddington Manor in Warwickshire – a real manor house, which still stands today, but the

Philip the phantom phantom

rest of the details were studiedly imaginary. Having 'created' Philip, the group held a seance once a week to try to get in touch with their brainchild. After a year, he began to answer back, giving one rap (on the table around which the group sat) for 'yes' and two for 'no'. They questioned him closely about his 'life' and, although most of his replies accorded exactly with his manufactured lifehistory, occasionally he seemed to take an independent line – almost as if he 'had a mind of his own'! Philip became a celebrity. The group demonstrated a typical 'Philip' seance on Canadian and American television with spectacular results (a heavy table turning over completely and floating in mid-air, for example). Inspired by the success of the Philip experiment, other groups are now creating their own 'ghost thoughtforms', and are trying to contact them.

been alerted by scratching and rapping sounds had always associated them with his two sons, aged 5 and 14. One afternoon the two boys went out for a walk with a friend. A little later the boys' father realised that it had been unwise to let the children wander about on their own, and he hurried after them. He was still some way away from them when he happened to turn around. He saw a stone, about the size of a small tennis ball, rapidly approaching him in mid-air. He put up his hand to catch it, but the stone swerved away from him at an angle of about 45 degrees, resumed its former route and flew on towards the boys. When the father caught up with the youngsters he learned that the stone had hit his elder son on the back, gently but firmly. Was the blow a punishment? Had the boy been bullying his younger brother? Impossible to tell - but it certainly seemed as though some form of intelligence had been controlling the path of the stone, for the father's attempt to catch it had proved useless: he merely deflected it.

This type of unseen control was once observed by the author, when he was investigating reported phenomena at a military establishment in Folkestone, in Kent, in 1974. Accompanied by two other researchers (and an armed guard, on whose presence the authorities had insisted), he was about to descend the main staircase of the building when he heard the sound of tinkling glass behind him. Turning instantly, he saw a light bulb rocking to and fro gently on the floor of the landing. The two other researchers also heard the noise, and one bent to pick up the bulb. The glass was warm to the touch. There were no cracks in the glass, and the filament was intact. The mystery and it has remained unresolved to this day was where did the bulb come from? If it had been fixed in one of the light sockets on the

Below: scene of poltergeist activity in Folkestone, Kent, in 1974. Observers discovered a light bulb on the landing of this staircase. It was warm and unbroken – yet had apparently travelled 26 feet (just under 8 metres) by means of some invisible agency



first floor, it would have had to travel in an S bend about 26 feet (just under 8 metres) from the ceiling of an empty room, around a half-open door and down on to the landing. Leaving aside the question of how it undertook this strange journey on its own, how was the bulb able to make such a soft landing that it suffered no damage? And what 'tinkled'?

It was in this same building that a large laundry basket, too heavy for three people to lift, was found to have moved from the ground floor to the airing cupboard close to where the light bulb was seen – and this happened when the building was quite empty. On another occasion, when the table in the large dining-room had been laid for an official function, two sets of cutlery vanished.

In the circumstances it can only be assumed that people who were in the building at different times were unconsciously responsible for the incidents. One of them may have been a particularly sensitive researcher who accompanied the author; the other was perhaps one of the female assistants who helped to prepare for the function on the day that the cutlery disappeared.

This is speculation, of course; we still have a great deal to learn about the sources of 'commotions and annoyances'. But one thing is certain: poltergeist activity is too common to be ignored or explained away as the product of fevered minds. The phenomena experienced by victims of RSPK are not illusions triggered by mental breakdown. On the other hand, neither should such experiences be taken too seriously. Perhaps just the right blend of scepticism and acceptance was displayed by an insurance company in 1942, when it paid out £400 against an £800 claim for damage caused by a poltergeist.

How is the energy for the poltergeist activity created, and by whom? See page 314



Did ancient astronauts civilise the Earth? And could they have come from a third star in the Sirius system, a star not yet discovered by Western astronomers? FRANCIS HITCHING examines the possibilities

WEST AFRICA'S DOGON TRIBE, some 2 million people, have a complex mythology built around the belief that, at some time in the distant past, amphibian beings called Nommo visited Earth with the purpose of civilising it. The Dogon revere the Nommo, who, they say, come from the star system Sirius, the brightest in the sky. They make sand drawings to show that Sirius has two invisible companion stars. One is small and extremely dense, 'heavier than all the material on Earth'. The other is said to be four times lighter in weight, and to have a nearly circular orbit. It is from a planet attached to this latter star that the Nommo are believed by the Dogon to have descended.

Stories of extra-terrestrial visitations are difficult to incorporate within modern science, and it is not surprising that the Dogon claims have been strongly and sceptically scrutinised. Writers who seek to give a plausible and terrestrial explanation of the Dogon's uncanny knowledge have pointed out that there have been French schools incorporating geography and natural history in their curricula in the area since 1907; that there has been a Moslem university in nearby Timbuktu since the 16th century; and even that members of the Dogon are said to have fought for the French in the trenches during the First World War. Robert Temple, however, thinks such explanations are facile:

The two French anthropologists Marcel Griaule and Germaine Dieterlen] started their work in 1931, and they are positive that the Dogon knew details about Sirius B when they arrived. . . . Eddington revealed the superdensity of Sirius B around 1926. . . . So there is a narrow period . . . when one has to imagine some group of amateur Western astronomers rushing out to . . . Mali and implanting this knowledge in the presumably pliant minds of the Dogon.

Temple is supported by Germaine Dieterlen, who lived with the Dogon for more than three decades. Any suggestion that the astronomical knowledge was of recent origin was, she said, absurd.

On balance it does not seem as if the

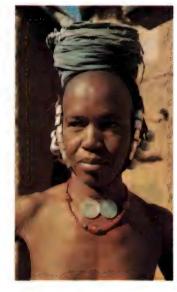
Dogon information came from modern Western sources – at least according to the researchers who have lived in and studied the area. But the evidence is by no means unambiguous, and there are only two ways of reaching a sound judgement about the extraordinary Dogon beliefs: first, to see if there is any supportive evidence in other legends from other places; and second, to see if there is any claim made by the Dogon that can be scientifically tested.

We are in the fortunate position of being able to make both approaches. The Dogon description of the Nommo is quite clear – they were amphibians, and they had a civilising, life-giving role. And their description of two invisible stars orbiting Sirius is intensely interesting, for although one (a so-called white dwarf) has already been discovered by Western astronomers, the other has not yet been. If the Dogon turned out to be correct in this, it would be powerful confirmation of the rest of their mythology.

In antiquity, the Dogon were almost certainly neighbours of the Egyptians, living in North Africa on the shores of the Mediterranean. So it is the classical mythologies – Egyptian, Mesopotamian and Greek – that must be examined to see if there are parallel legends speaking of Sirius as something special in the sky, and of being the home of amphibian visitors from outer space.

It is a difficult task even for classical scholars. In his book *The Sirius mystery*, Robert Temple points out that the Dogon knowledge, until unearthed by two trusted French anthropologists, was sacred and secret to the priesthood. Similarly with classical legends.

Secret doctrines are not scribbled down too frequently and left for posterity. The most secret doctrine of the



Above: the two medallions worn by this Dogon woman are said to signify the 'twinning' concept of Dogon mythology – the notion that each element of nature is one of a pair of opposites

Dogon was only revealed with great reluctance after many, many years, and following upon a conference by the initiates. The Egyptians were no fools, and we can hardly expect them to have left papyri or texts specifically revealing in so many words what they were not supposed to reveal. We can only try to piece together clues.

In Temple's view, the clues 'turn into a veritable avalanche'. But about the star system Sirius itself the myths tell us disappointingly little. Peter James, a classical historian at London University, points out that it is hardly surprising that the ancients regarded Sirius as an important star and attached to it a number of mythological motifs. Sirius was not only the brightest star in the sky, but for many centuries its heliacal rising coincided with the inundation of the Nile, giving it a special calendrical importance. 'None of the myths as they stand obviously describe the kind of knowledge about Sirius' invisible astronomy such as the Dogon appear to possess – nothing suggests extraordinary knowledge of Sirius B.'

As an example of how far one has to stretch interpretation of myths in order to read into them an occult knowledge of Sirius's companion star, Peter James quotes the Isis/Osiris relationship as the best of Robert Temple's 'clues'. It is, to say the least, obscure:

Isis, the goddess of Sirius, had a husband called Osiris, who was considered dark, or black. One of his aspects was Anubis, a Jackal-headed god. There is not much to go on here, but it at least suggests the possibility that the Egyptians knew about an invisible companion to Sirius A.

However, the parallels between Greek and



Left: in ancient Egyptian mythology, the dog god Anubis is often identified with Osiris, companion of the goddess Isis. Historian Robert Temple considers that as Isis herself was identified with Sirius, it is reasonable to suppose that her companion was identified with the companion of Sirius – suggesting that the ancient Egyptians knew of the existence of Sirius B

Dogon legends about civilising amphibian creatures are much more promising. Fishbodied aliens abound in Greek mythology, notably in the island of Rhodes, with its culture-bearing inhabitants the Telchines.

Diodorus Siculus, the Greek historian, wrote of them that they were 'the discoverers of certain arts and introduced other things which are useful for the life of mankind.' Other texts speak of them being 'submarine magic spirits' and 'demons of the depths of the sea'; they 'had dog's heads and flippers for hands'.

From Berossus, a Babylonian priest, there is a very similar description of creatures called Annedoti ('Repulsive Ones'), fishmen who introduced civilisation. The first and most famous was called Oannes or Oe, who was thought to have come from a great egg, and who instructed the Babylonians 'in



every thing which could tend to soften manners and humanize mankind'.

Peter James's cautious conclusion is 'there does seem to be a substratum of Greek myth that connects fish-deities with the introduction of civilisation and the oracles, that has parallels in the traditions of the Dogon and the Babylonians.'

None of this, of course, is as conclusive as would be the discovery of a third star in the Sirius system, as predicted by the Dogon. For the time being, once again the signs are not promising, but within the bounds of possibility. Indeed, the matter has been the subject of considerable astronomical debate.

In the 1920s, a number of astronomers repeatedly said they had observed a third star, and named it Sirius C. It was perceived as being red, so it could be what is known as a red dwarf, which is much less dense than a white dwarf. This would be consistent with the Dogon description of the third star being four times lighter (in weight) then Sirius B.

Subsequently, it has not been possible to observe the star. Also, perturbations in the



Left: the hounds of Actaeon. According to Greek legend these were the survivors of the Telchines, amphibian, life-giving gods of Rhodes

Above: an altar object, depicting seven Nommo figures, from a Dogon shrine

Above right: a Dogon drawing portraying the heliacal rising of Sirius. The Dogon claim their knowledge of such astronomical events came from the Nommo; but the ancient Egyptians knew of the rising of the star and based their calendar on it—could they have given the information to the Dogon?



movement of Sirius A, which were thought to be linked to a possible third star, have now been shown to be unconnected. The astronomer who provided this 'disproof', Irving W. Lindenblad at the Us Naval Observatory in Washington, DC, thinks the existence of a third star highly unlikely: 'The possibility of a very distant third body cannot be ruled out theoretically as being physically impossible but there is absolutely no evidence for such a body.' Two astronomers at London University, writing in the technical journal Astrophysics and space science, were slightly more optimistic: they had produced on a computer near-circular orbits (as described by the Dogon) lasting from 275 to 425 years for a third star that would be consistent with the motion of Sirius A.

So where does this argument and counterargument leave us? Are the Dogon traditions good evidence of extra-terrestrial visitors?

It is fair to conclude that, somehow or another, they are privy to astronomical information, which by right they should not be. This is the considered opinion of Germaine Dieterlen, and it seems preferable to accept her first-hand judgement than that of her (and Temple's) critics who re-interpret the myths at second hand.

But where did the knowledge derive? Is the misty link between the amphibians of Greek and Babylonian legend and the Dogon Nommo enough to make us sure that Earth has been visited in the past? It is so unlikely a possibility that before embracing it we might also consider other unlikely explanations: that the priesthoods of classical times formed their knowledge of the Universe through extra-sensory perception, using secret oracular methods that we have long forgotten, but that percolated into the mythology of the Dogon priesthood. Perhaps, against all the astronomical odds, the third star in the Sirius system, a supposed red dwarf, flared so violently that it could be seen and its orbit calculated. It is, you might say, a balance of improbabilities.

Further reading

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THE BELIEF THAT mankind is not the sole representative of intelligent life in the Universe is very old. And it is more than a belief: as the philosopher Metrodorus put it in the third century BC, 'to consider the Earth the only populated world in infinite space is as absurd as to assert that in an entire field sown with millet, only one grain will grow.' There is indeed a high mathematical chance that Man is not the only intelligent creature in the vastness of space, but there remain a number of problems to be overcome before we can be sure of actually making contact with another civilisation.

One of them, as we have seen, is the question of whether an advanced technological civilisation will survive long enough to receive any signal from Earth. By the same logic, we may have destroyed ourselves in the time it takes for the signal to be picked up and answered. Another is the matter of where we should direct our signals – and even if our messages are received, how can we be sure that they will be understood?

If we take an optimistic view of our own chance of survival on Earth, and assume equally long lives for extra-terrestrial civilisations, the next step is to deduce where another intelligence may have arisen.

The conditions for life

We are assuming, in looking for such a place, that the life that we may find there is the same, biologically speaking, as life on Earth: that is, one based on carbon and water. There is some logic in this notion, for though in theory life could emerge at temperatures ranging from those on the surface of a star to those experienced on a cold planet, such a form of life is unlikely to be composed of the same materials, or even resemble that on Earth. Besides, terrestrial biology makes use of material - carbon, nitrogen, hydrogen and oxygen-that exists in very large quantities in space, while the conditions on Earth are peculiarly suitable for life based on them to emerge. It makes sense that life arises from substances that are abundant, as Metrodorus instinctively recognised. And it certainly makes sense for Man to look for life forms that, because they should be biologically similar, he can recognise as such – and that in turn will recognise him.

In effect, this means starting the search by looking for stars similar to our own Sun. The Sun is, as stars go, neither particularly large nor especially small – and it is this moderateness that is crucial to the development of life. A heavy star burns bright and burns fast: one only twice as massive will be twice as hot, but will last only a tenth of the Sun's predicted lifetime – a thousand million years as against 10,000 million. Not only that, but it will be pumping out huge amounts of deadly shortwave radiation, in the face of which no life of any kind could gain a foothold.

A relatively lightweight star, on the other hand, will last a very long time. But it will not



Where do the aliens live?

We know which stars may support life. But have aliens already recognised that there is life on Earth – and are they investigating us? RON HYAMS concludes the series on the search for life in space



Above: an artist's impression of a binary star system as it would be seen from the surface of a nearby planet. The 'small', bright blue star actually about three times larger than our Sun – orbits an enormous red supergiant. This is so large that if it took the place of our Sun, Earth and its orbit would be trapped inside it

Left: animal life on Earth depends on the oxygen given off by plants – could life on other planets be similarly organised?



Below: Helmut Abt who, with Saul Levy, made important discoveries about the nature of planet-bearing stars and conditions necessary for life

Below right: Barnard's star (marked with an arrow) is a red dwarf and the second nearest star to our Sun. Although it has a large planetary system, all its known planets are lifeless



produce sufficient light to support life, despite the comparatively harmless radiation it generates. For the earliest and most primitive forms of life – plants – depend on sunlight to break down the carbon dioxide in the atmosphere, using the carbon as 'food' and releasing oxygen.

Our Sun is a happy compromise between the extremes of heat and cold, and there are some 5000 million stars like it in our Galaxy.

However, the mere existence of Sun-like stars does not mean that life is – or may be – stirring nearby. Any biological process needs the protection of a planet – a place that is shielded by its atmosphere from ultra-violet radiation, and that forms a meeting place for the chemical constituents of life. Finding the right kind of star is, for a modern astronomer, easy enough. Finding one with a planetary system is a little more complicated.

The results of an investigation into the nature of planet-bearing stars, published in 1976 by Helmut Abt and Saul Levy, are crucial in this respect. Abt and Levy observed that double-star systems (or binary stars) fall into two categories: those that take 100 years or more to orbit each other, and those, with the stars closer together, that orbit much more quickly. They reasoned that the closer, short-period binary systems came into being when the spinning blob of gas from which stars form split in two. As the rotation of the blob increased, so did its density, and the proto-star became unstable, eventually breaking up to form a double star. By calculating the amount of energy in these systems they further concluded that all condensing proto-stars split in this way. However, a third of the stars that Abt and Levy studied had no companion suns. The conclusion they reached was that planets, rather than stars, had been formed instead.

Astronomers reckon that stars that are one-and-a-half times the mass of our Sun or smaller will produce sufficient light and will last long enough for life to emerge on their planets. It follows from Abt and Levy's work that stars of this size, and those that are not part of a close binary system, should have

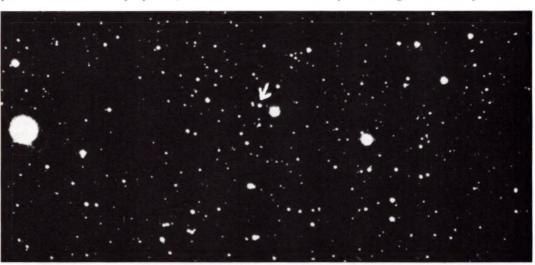
planets. And those planets could support life – and if life, why not civilisation?

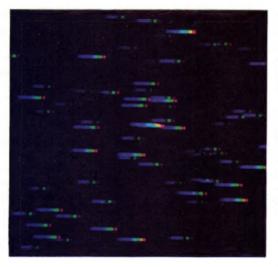
It is possible to detect the existence of planets around a star by looking for variations in its movement through space. The movement results from the rotation of our entire Galaxy; the variation is a 'wobble' produced by the gravitational effect of any satellites the star may have. And in 1963, Peter van de Kamp, an astronomer at Sproul Observatory in Pennsylvania, USA, announced that the red dwarf known as Barnard's star - the second nearest star to our Sun – seemed to have a planetary system. By 1978 some dozen stars with planets as big or bigger than our own giant planet Jupiter had been detected: but every one of them was a red dwarf. None could support life.

Other astronomers are, however, looking at more promising stars, using the much more sensitive method of spectroscopy. This measures the changes in wavelength of the light emitted by stars that are caused by the planets orbiting about them. Another method is speckle interferometry, which cuts out much of the effect of the Earth's atmosphere and allows precise measurement of star behaviour. But the work is long and delicate, and will take years to produce results.

And once planets are discovered, what then? Radio signals still seem the best method of making contact, and then it will be only technologically advanced civilisations that could reply. Probes equipped with cameras would produce little evidence of life that was not highly developed, since the cameras would need extremely high resolution, with the ability to distinguish fine details only a few metres apart.

On the other hand, while astronauts have not set foot beyond the Moon, automatic probes have already landed on Mars and Venus and travelled beyond Mercury and Jupiter. Our first exploration of the stars might then be by stellar probes rather than by astronaut. On the same logic it is possible that if aliens tried to visit us, they would do so at first not in person but by sending probes that would pass through our solar system and





send messages back about life on Earth.

We ourselves have sent probes not just to signal back information but to carry a message from Earth to other beings in space. On 3 March 1972 the Jupiter probe Pioneer 10 was launched. Attached to its antenna was a small plaque etched into a gold-anodised aluminium plate 6 inches by 9 inches (15 centimetres by 22.5 centimetres).

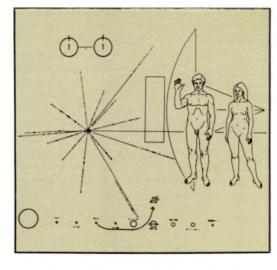
Etched on the plate is a code message that was composed by the American astronomers Carl Sagan and Frank Donald Drake. It is written in the binary code used by computers and locates the Earth by reference to nearby pulsars, which should be recognisable 'land marks' for any technologically advanced civilisation. Another part of the engraving shows the positions of the planets of the solar system with the path followed by Pioneer 10 marked on it. But the most controversial item on the plaque is a diagram showing Pioneer 10, and in front of it, to scale, representations of a naked man and woman. Much debate has been aroused by the fact that the man's arm is lifted in what, it is hoped, will be interpreted as a gesture of peace. Science writer Ian Ridpath, however, reports that on raising his arm to a cageful of Rhesus monkeys, which are quite closely related to man, they attacked him.

What will other beings make of this? Presumably any civilisation sufficiently advanced to pick up the probe will have the scientific knowledge to understand the purely technical symbols. Sagan points out, though, that the pictures of humans may well puzzle them, since they may not resemble any life form they have ever encountered – they may not even recognise us as life forms at all.

But what if an alien probe has already passed by Earth? Would they take an interest in us? Would they actually bother to try and visit us in person? Do we offer anything that might interest them? We are just beginning to show that we can send rockets from our own planet to other worlds. We've also amply demonstrated a remarkable inability to live in peace and solve the problems of our

Left: spectroscopic analysis of the wavelength of starlight

Right: the pictorial plaque that was attached to NASA's Pioneer 10 spacecraft, launched in 1972. It was intended to convey to any 'scientifically educated' aliens complex information about the position of our planet, our Solar system and ourselves. The man's raised hand, intended as a gesture of goodwill, could, some critics point out, be interpreted as a sign of aggression. But by the time it is intercepted mankind could have died out



own planet. But now that we are able to propel ourselves and our problems out to the stars we may suddenly be of great interest to the inhabitants of other worlds. Any Galactic federation concerned for its own survival and the peace of the Galaxy would no doubt want to watch us very carefully indeed.

In fact might it not be that extraterrestrials are already living among us? If we were interested in studying a primitive culture, we would try to be as unobtrusive as possible. Similarly, a good alien scientist would rather observe us humans without himself being observed. And if the aliens really wanted to understand us, they would probably want to mingle with us. What better way would they have than to disguise themselves in human form so as to mix unnoticed amongst us? So perhaps we are already being watched, and perhaps aliens are much closer than we dare imagine.

Further reading

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Sounds of human life

The strangest, and possibly the most important, long-playing record ever made on Earth was despatched into deepest space on board the two Voyager spacecraft, launched in August 1977. This 12-inch (30-centimetre) copper disc, designed to be played at 162 revolutions per minute, plays for two hours. A selection of 116 pictures, recorded in electronic form, shows 20th-century life on Earth including 'pictures' of a foetus, a mother and baby, a family, people of different races and a variety of animal life and plants. Buildings and a rocket launching are chosen to represent Man's technology. There are also oral greetings in 55 languages and other sounds of Earth the natural ones include wind, surf, frogs and whales and man-made sounds such as a tractor engine, and the Saturn 5 liftoff. The inventor of Sounds of Earth, Dr Carl Sagan, describes it as 'a bottle cast into the cosmic ocean'. But will it ever be found - and if so how will the aliens understand it?

Post script_

Your letters to THE UNEXPLAINED

Dear Sir,

A couple of years ago I was introduced at a dinner party to someone who used to fly with the Red Arrows. He told me a rather remarkable story of strange happenings experienced by pilots of Harrier jets while executing certain manoeuvres. Pilots talked of being put into another dimension, switched to recognisable places sometimes thousands of miles distant in just seconds, switching from flying in murky weather conditions to brilliantly clear skies in a flash and remaining there for a few seconds before the weather turned bad again, seeing UFOs in large numbers for the first time. . . . Many of the pilots have had the experience while executing a certain manoeuvre, which is the following: during workouts in flying combat techniques, it was decided that vertical thrust should be tried out to assist the Harrier in making a tighter turn. The first time it was done, the aircraft was doing about 320 miles per hour [500 km/h] in level flight, then its thrust was brought round for a hard left turn, and it was said afterwards by ground observers that the Harrier seemed to stop and then blast its way into a U-turn. This manoeuvre was stepped up during the Harrier programme, and when the Americans started theirs, their pilots reported having the same strange experiences.

Ground control radar reported that sometimes during the manoeuvre it would lose its trace of the plane at the same time as losing radio contact with the pilot. The flight box recorder, however, always seemed to function properly.

The sinister aspect of all this is that there seems to be a cover-up operation going on on both sides of the Atlantic. Information about the numbers of Harriers that have crashed while carrying out the U-turn manoeuvre has been systematically suppressed.

When I spoke to an aviation expert about this strange phenomenon he said he had heard reports of these things happening to pilots, but not on Harriers. He said the stories go back to the First World War when flying conditions were extremely uncomfortable: pilots were unprotected from the cold and suffered from oxygen starvation, and hallucinated frequently. But nowadays pilots fly in a much more comfortable environment with heated g-suits, which prevent the flow of blood away from the head, and bags of oxygen – and things still happen to them that they don't like to talk about, and they see things in the sky that just should not be there.

Yours faithfully,

D. Brabazon

London

Dear Sir,

Throughout my life I have had many visions, and have been surprised to learn that few other people have them. The last one I had was the most vivid and, but for the fact that I was a little frightened, the most beautiful. Whenever I see visions they are so real that I become afraid because it seems that a perfect stranger has broken into my house.

This particular night, it was about 3.10 a.m., I turned over in bed to face the door and sleepily opened my eyes. In absolute amazement and fear I saw a young girl, about 16 years old, with very short blonde hair, very white skin and wearing a short

classical Greek pink tunic – the type that has only one shoulder strap. She was sitting casually on the floor near the door, about 7 feet [2 metres] away, and looking down. As I widened my eyes and blinked to make sure she was still there, she turned and looked at me. Words cannot express how I felt, but my hand began to reach out towards the light switch. I get very annoyed with myself for becoming scared when I see visions, as I have hardly ever had a frightening one, but it nearly always seems to happen.

My Greek spirit reached out and took something from the floor and handed it to me; it was two branches of pink blossom – beautiful. By this time, my fingers had reached the switch, and just before I pressed it she was sitting as before, looking at me with the faintest expression of enquiry in her eyes, as if to say 'What's the matter with you?'

The whole experience lasted only seconds, yet she was so vivid and real, somehow lit up in the darkened room. This is just one of my paranormal experiences, though definitely the best.

Yours faithfully,

(Name and address supplied)

Dear Sir,

In June 1980 my daughter Alison had the following experience; as I was not there at the time, I shall relate the story as she told it to me. It took place when Alison was spending the evening at the home of Mary, a friend of mine.

'As we left the lounge to rustle up some cakes and drinks for everyone, I asked Mary if I might use the bathroom. I had completed my toilet and was turning to reach for the towel to dry my hands when, there in the bath, I saw the figure of a man, fully clothed, his eyes wide open, and staring at me. Strangely enough, I felt no fear. I continued to dry my hands, all the while watching this strange man. Putting the towel back on the rack, I unhurriedly switched off the light and walked out onto the landing. There in front of me, in an armchair in a doorway, sat the selfsame man! Turning, I began to walk down the stairs, and as I neared the bottom fear struck me and I raced into the kitchen.

'I told Mary my story. At first I think she thought I was imagining what I had seen, but I was in such a state that she soon realised I was deadly serious. She insisted that we go upstairs, to reassure me and to make sure there were no uninvited guests wandering about.

'As we climbed the stairs my heart was in my mouth. Would the man still be there? But no, all the rooms were empty.'

Mary and I discussed the incident the next day, and when Alison came home from school we showed her some photos of Mary's and her husband's families. Alison sorted through the pictures, then suddenly stopped: 'This is the man I saw in the bath.' The picture was of Mary's father-in-law, who had died in the very chair Alison had seen him sitting in on the stairs. Why he first appeared in the bath, or why he appeared to Alison, whom he had never met, is still a mystery to all of us.

Yours faithfully,

Elaine Kay

West Melton, South Yorkshire

